

### **REMARKS/ARGUMENTS**

Claim 12 is deemed withdrawn from consideration by the office action of July 7, 2005. Claims 1-11 were rejected by the office action of March 24, 2005. Claims 1-11 are cancelled, claim 12 is withdrawn and new claim 13 is added.

By the office action of July 7, 2005, the examiner determined that claim 12 was directed to an invention that is independent or distinct from the invention originally claimed. The examiner further stated that claim 12 was drawn to a method of making a ferroelectric material while original claims 1-11 were directed to any ferroelectric perovskite material having compositional variation in the atomic planes. Accordingly, claim 12 is withdrawn and new claim 13 is added.

New claim 13 claims a ferroelectric perovskite material comprising stacked planes of  $\text{Pb}(\text{Sc}, \text{Nb})\text{O}_3$  ordered along the [001] direction where the amount of Nb and Sc is modulated in each plane. It is submitted therefore, that new claim 13 is comprised within the invention originally claimed.

In the office action of March 24, 2005, the examiner objected to the specification as failing to provide proper antecedent basis for the claimed subject matter of claims 1-11. The examiner states that the specification only teaches  $\text{Pb}(\text{Sc}, \text{Nb})\text{O}_3$  ordered along the [001] direction where the amount of Nb and Sc is modulated in each plane and concludes that the specification does not support the claimed materials. Claims 1-11 are cancelled. New claim 13 claims a ferroelectric material comprising stacked planes of  $\text{Pb}(\text{Sc}, \text{Nb})\text{O}_3$  ordered along the [001] direction where the amount of Nb and Sc is modulated in each plane. Accordingly, it is submitted that claim 13 is adequately supported by the specification.

Also by the office action of March 24, 2005, the examiner rejected claims 1-11 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the examiner states that the term "short" in claims 1 and 9 is indefinite and that the specification only teaches a four-plane period. Claims 1-11 are cancelled. New claim 13 is limited to a four-plane period. Accordingly, it is submitted that this rejection is overcome by this amendment.

In the office action of March 24, 2005, the examiner rejected claims 1-11 under 35 USC 112, first paragraph, because the specification while being enabling for  $\text{Pb}(\text{Sc}, \text{Nb})\text{O}_3$  ordered along the [001] direction where the amount of Nb and Sc is modulated in each plane, does not provide enablement for any ferroelectric perovskite atomically ordered along a direction that is not the polarization direction. Claims 1-11 are cancelled. New claim 13 is limited to  $\text{Pb}(\text{Sc}, \text{Nb})\text{O}_3$  ordered along the [001] direction where the amount of Nb and Sc is modulated in each plane. Accordingly, it is submitted that this rejection is overcome by this amendment.

Also in the office action of March 24, 2005, the examiner rejected claims 1 and 3-8 under 35 USC 102(b) as being anticipated by the article by George et al. The examiner states that the reference teaches the enhanced properties at room temperature which falls within the claimed range and that teaching at one point in the range anticipates the invention. The examiner refers to MPEP 2131.03 (I). The examiner's rejection is respectfully traversed for the following reasons.

Claims 1-11 are cancelled. New claim 13 is added. The temperature taught by the George et al. article is not room temperature but 50K. See page 060102-2 ("The

results in Fig. 1 correspond to a temperature of 50K.") and page 060102-4

("...especially taking into account that the simulated temperature is as low as 50K.").

New claim 13 is limited to a temperature range below the Curie temperature of the disordered alloy and above 50K. It is submitted therefore that the disclosures of the George et al. article do not anticipate claim 13 and that claim 13 is allowable over the George et al. article.

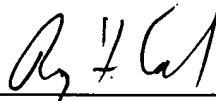
Finally, by the office action of March 24, 2005, the examiner rejected claims 1-8 under 35 USC 102(b) as being anticipated by the abstract and slides of the presentation given in February 2001. The examiner states that the reference teaches the enhanced properties at room temperature which falls within the claimed range and that teaching at one point in the range anticipates the invention. The examiner refers to MPEP 2131.03(I). The examiner's rejection is respectfully traversed for the following reasons.

Claims 1-11 are cancelled. The temperature taught by the abstract and slides of February 2001 is not room temperature but 50K. See pages 8 and 14 ("Effect on local modes at 50K"), page 11 ("Effect on piezoelectricity(at 50K)?") and page 12 ("Effect on dielectric response (at 50K)?"). New claim 13 is limited to a temperature range below the Curie temperature of the disordered alloy and above 50K. It is submitted therefore that the disclosures of the abstract and slides of February 2001 do not anticipate claim 13 and that claim 13 is allowable over the abstract and slides of February 2001.

The applicant submits that claim 13 is in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

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